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U. S. DEPARTMENT OF AGRICULTURE,

BUREAU OF SOILS—MILTON WHITNEY, Chief.

IN COOPERATION WITH THE STATE OF MISSISSIPPI, THEODORE G. BILBO, GOVERNOR; E. N. LOWE, DIRECTOR, STATE GEOLOGICAL SURVEY.

SOIL SURVEY OF LAMAR COUNTY, MISSISSIPPI.

BY

E. MALCOLM JONES, OF THE MISSISSIPPI GEOLOGICAL SURVEY, IN CHARGE, H. G. LEWIS, W. I. WATKINS, A. C. ANDERSON, AND G. W. MUSGRAVE, OF THE U. S. DEPARTMENT OF AGRICULTURE.

HUGH H. BENNETT, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1919.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1922

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U. S. DEPARTMENT OF AGRICULTURE,

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Soils,
Washington, D. C., May 9, 1921.

Sir: I have the honor to transmit herewith the manuscript report and map covering the soil survey of Lamar County, Miss., and to recommend that they be published as advance sheets of Field Operations of the Bureau of Soils, 1919, as authorized by law. This work was done in cooperation with State of Mississippi Geological Survey.

Respectfully,

Milton Whitney,
Chief of Bureau.

Hon. H. C. Wallace,
Secretary of Agriculture.

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SOIL SURVEY OF LAMAR COUNTY, MISSISSIPPI.

By E. MALCOLM JONES, of the Mississippi Geological Survey, In Charge, and H. G. LEWIS, W. I. WATKINS, A. C. ANDERSON, and G. W. MUSGRAVE, of the U. S. Department of Agriculture.—Area Inspected by HUGH H. BENNETT.

DESCRIPTION OF THE AREA.

Lamar County, Miss., lies in the southern part of the State, about 100 miles northeast of New Orleans, La., and about 100 miles southwest of Meridian. It is roughly rectangular in shape, with a width of 18 miles east and west and a maximum length, in the western part, of 30 miles north and south. It comprises an area of 495 square miles, or 316,800 acres.

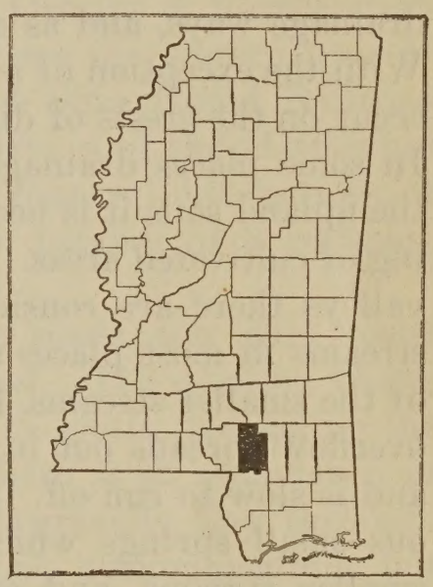

FIG. 1.—Sketch map showing location of the Lamar County area, Mississippi.

The county occupies the divide between the Pearl River on the west and Leaf River on the east. It consists of undulating or gently rolling to hilly uplands traversed by broad stream valleys. A large part of the county, the smoother, broader divides and plateaulike areas between many drainage ways, is admirably suited in topography to efficient cultivation with any kind of farm implement. The slopes, being steeper, are not so favorable topographically, but with proper terracing most of them can be economically farmed.

The larger part of the county drains toward the east and southeast through Red, Little Black, Black, and Big Creeks and their tributaries. These flow into Forrest County and later empty into the lower waters of Leaf River. Red Creek drains the south-central part of the county southeastward into the Pascagoula River. Little Black Creek drains the east-central part of the county eastward. Black Creek enters Lamar County in the northwestern part and flows southeast, leaving the county just northeast of Purvis, and finally emptying into the Pascagoula River. The northern part of the county drains to the north and northeast into tributaries of Bouie River, a branch of Leaf River, in Forrest County. The southwestern part of the county is drained by White Oak, Middle Fork, and Clear Creeks, which flow westward and empty into Pearl River.

Wolf Creek and Boley Creek head in this part of the county and flow southward. The divide between the Pearl River and Leaf River drainage systems extends to the northeast from Baxterville, and drains westward through Half Moon Creek, Gully Creek, and Upper and Lower Little Creeks.

The elevation of the county ranges from 232 feet above sea level at Okahola on the New Orleans & Northeastern Railroad (Southern Railway system) in Black Creek Valley to 404 feet at Baxterville. Lumberton has an elevation of 258 feet, Epley 350 feet, Sumrall 290 feet, and Purvis 365 feet. Purvis is considered the highest point on the railroad between Hattiesburg and New Orleans.

The county as a whole has a well-established drainage system, a network of creeks and their tributaries reaching practically every part of the area. Nearly every farm is connected with one or more drainage ways, and as a result many fields are small and irregular. With the exception of a few flat areas of small extent, which usually occur on the crests of divides, the upland has good surface drainage. In some places drainage is excessive, and on a large proportion of the upland soils it is necessary to terrace the slopes to prevent washing of cultivated areas. Along the outer margin of the larger stream valleys there are considerable areas of poorly drained land. The streams in most places are deep, narrow, and swift flowing. Many of the smaller streams, however, are not so deep, and after rains the overflow spreads out in broad sheets adjacent to the stream courses and is slow to run off. Scattered throughout the county are numerous small springs which supply a constant flow of water to the smaller streams, and on these streams water power could be developed on a small scale.

The stream-bottom lands are overflowed during heavy rainfall. While bottoms of the creeks are locally known as "swamps," there is not much typical swamp land in the county. In most cases the bottoms along the small drainage ways, having a width of 50 to 100 yards, are poorly drained and swampy and there are some swampy areas along the larger streams, but such areas are of very small extent.

The region now comprising Lamar County was surveyed in 1811 and 1812, and settlement began soon after, the settlers coming principally from States to the east and northeast. About 1820 there was a large immigration from South Carolina, and the present population consists principally of descendants of these early settlers.

Lamar County was formed from parts of Pearl River and Marion Counties in 1904. The population of the county, according to the 1910 census, was 11,741, all of which was classed as rural, there being no town in the county with a population of 2,500 or more. The average population per square mile was shown to be 23.7. In recent years

many farmers from Alabama have settled in the vicinity of Purvis. North of Lumberton there is a small colony of Germans engaged in dairying.

The 1920 census reports the population of the county as 12,869, all of which is classed as rural. The average population per square mile is 26. Purvis, the county seat, has a population of 919. It is situated about midway between New Orleans and Meridian. The county agricultural high school is located here. Lumberton, with a population of 2,192, and Sumrall, with a population of 1,444, are the largest towns in the county. Other towns of importance are Baxterville, Richburg, Okahola, Talowah, Epley, and Clyde. The chief industry of these towns is lumbering, and all the towns have large sawmills. A creamery is located at Sumrall, and dairying in that vicinity is becoming an important industry.

The county has three railroads; the New Orleans & Northeastern Railroad (Southern Railway system) traverses the eastern part of the county from north to south, the Gulf & Ship Island Railroad traverses the southern and southwestern parts, and the Mississippi Central Railroad the northern part of the county. All sections of the county are within comparatively short distance of a railroad, except the small settlement of Oloh.

The county is well supplied with public roads, the main roads being graded and a few surfaced with gravel. The Jackson Highway passes through the county from north to south, paralleling the New Orleans & Northeastern Railroad. There is an abundance of good road-building material in the form of gravelly clay throughout the county. The towns have telephone communication, but there are few rural telephone lines. Rural mail delivery service reaches the greater part of the county. There is a good consolidated school system throughout the county.

Lumber and crossties from this region are shipped to northern and eastern markets and to Gulf Coast points. New Orleans is the principal market for cotton and dairy products. Hattiesburg and the larger towns in the county furnish local markets. St. Louis receives a greater part of the cattle and sheep shipped from the area. Whole milk is shipped to New Orleans from Purvis and Lumberton, while the products from the creamery at Sumrall are sold in Hattiesburg or shipped to Cleveland, Ohio.

CLIMATE.

The climate of Lamar County is typical of the warm Temperate Zone. The summers are long and hot and the winters short and mild. The summer season begins about May 1 and lasts until about October 1. The winter temperature rarely drops below 8° or 10° F., and then only for a few days at a time. The ground seldom freezes below 1 to 2 inches during the coldest weather.

The mean temperature for the year is about 67° F., while that for the summer is 82° F., and for the winter months about 51° F. The lowest temperature recorded is —1° F. during the month of February, and the highest is 106° F. during the month of June.

The average date of the last killing frost in the spring is March 14 and of the first in the fall November 7. The latest recorded killing frost in the spring occurred on April 10 and the earliest in the fall on October 21. The growing season is long and favorable for the production of a large variety of crops. The ground can be kept in a tillable state throughout the year, and oats, rye, and other cover crops grow throughout the winter months.

The annual precipitation of 52.96 inches is fairly well distributed throughout the year. The greater part occurs in the spring and summer, during which seasons about 30 inches of rainfall is received. Periods of dry weather or drought are common, occasionally lasting three to five weeks.

There is no Weather Bureau station in Lamar County, but the following table, compiled from the records of the station at Hattiesburg, in Forrest County, which adjoins Lamar County on the east, gives climatic data applicable to Lamar County:

Normal monthly, seasonal, and annual temperature and precipitation at Hattiesburg, Forrest County.

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year. (1894)	Total amount for the wettest year. (1907)
	°F.	°F.	°F.	Inches.	Inches.	Inches.
December	50.5	85	13	3.50	4.78	5.30
January	49.6	84	15	4.63	3.14	2.04
February	51.5	86	— 1	5.32	5.92	2.94
Winter	50.5	86	— 1	13.45	13.84	10.28
March	61.2	91	23	5.04	5.07	3.68
April	66.2	93	31	5.09	2.55	4.82
May	73.7	102	39	4.59	2.50	13.92
Spring	67.0	102	23	14.72	10.12	22.42
June	80.5	106	50	5.26	1.65	4.34
July	82.1	103	55	6.73	7.46	13.16
August	82.0	105	55	3.86	6.43	4.22
Summer	81.5	106	50	15.85	15.54	21.72
September	77.7	101	40	4.22	2.49	8.48
October	66.3	98	28	1.78	.30	2.20
November	57.3	88	19	2.94	.97	8.24
Fall	67.1	101	19	8.94	3.76	18.92
Year	66.6	106	— 1	52.96	43.26	73.34

AGRICULTURE.

Originally the uplands of the area now embraced in Lamar County supported a heavy growth of longleaf pine. On some of the higher ridges the growth consisted of red oak, white oak, dogwood, and some shortleaf pine. Black hickory, sweet gum, black gum, persimmon, post oak, blackjack oak, and numerous other trees and shrubs grew in other places in the uplands. In the stream bottoms the growth was principally tulip poplar, beech, maple, water oak, willow oak, magnolia, gum, and bay, with a heavy growth of vines and shrubs, such as the star anise (stink bay), laurel (swamp ivy), cross vine, smilax, and others. In recent years many sawmills located within the county have drawn heavily on the pine forests, until at present (1919) the area of standing timber is comparatively small. There are, however, many small areas of merchantable pine. The pine forest contains little or no shrubbery undergrowth, and during the growing season it is carpeted with long, often very beautiful, grass, interspersed with brilliantly colored flowers. In wet areas, such as are occupied by the Plummer soils, where strata not very pervious to water underlie the soil at no great depth, the growth consists of gallberry, pitcher plants, and several water-loving grasses. The cut-over pine areas soon grow up with a heavy growth of blackjack oak, post oak, and runner oak, with scattered second-growth pine.

In 1910 little more than one-fourth of the total area of the county was classed by the census as farm land, and practically the same area is under cultivation at the present time. The remaining area consists of land recently cut over, with a few areas of standing timber and unimproved bottom land. The cost of putting cut-over land under cultivation ranges from $3 to $5 an acre. This includes the removing of recently grown small trees and undergrowth, and a few of the stumps. Removing all the stumps adds from $8 to $10 or more an acre to the cost of clearing.[1]

The early settlers located along the larger stream courses and cultivated small areas of the uplands and adjacent bench lands (second bottoms). The principal crops grown were corn, tobacco, cotton, sugar cane, and sweet potatoes, all of which were produced almost exclusively for home use. The land farmed was enriched by "cow penning" during the winter months and by applications of barnyard manure when available. The open free range of the unbroken

[1] Many different methods have been employed to remove the pine stumps in southern Mississippi, but which is the best method is still undecided. On a farm 8 miles west of Purvis the method of burning stumps has been successfully employed, at a cost averaging $2.50 an acre. A hole is dug under the stump and a fire is started which is kept burning by the circulation of air. This is done preferably in hot, dry weather, although the holes may be dug in wet weather when the ground is moist and digging easy.

pine forest afforded an abundance of excellent grazing, and hogs, cattle, and sheep were raised extensively and constituted the principal source of income. The stock was either sold to drovers or was driven by the farmers to market at Mobile.

In the late seventies the value of the great pine forests began to attract attention, and in the next few years thousands of acres of the public land passed into private ownership. Some of it was acquired by residents of the county, either by purchase at $1.25 an acre or by homesteading, but the greater proportion was bought by northern capitalists. This was the beginning of the vast timber holdings in this section of the State, whereby a few companies now own immense tracts of land. The industrial activity of the last 25 years has been based almost entirely upon the lumber business. While there was a rapid increase in population and land value greatly increased, farming received comparatively little attention. It is now generally recognized that the chief economic problem is the agricultural development of the large areas of cut-over lands.

The following table, compiled from the census reports of 1910 and 1920, shows the relative importance of the various crops in the two census years:

Acreage and production of various crops, 1909 and 1919.

Crop.	1909		1919	
	Area.	Yield.	Area.	Yield.
	Acres.	*Bushels.*	*Acres.*	*Bushels.*
Corn	6,289	101,013	11,251	155,732
Oats	452	7,159	554	5,876
Rice	6	64	.....	.....
Dry peas	576	2,377	147	672
Dry edible beans	9	98	.....	.....
Peanuts	140	2,888	93	994
Potatoes	55	4,054	79	6,140
Sweet potatoes	771	65,927	892	80,813
		Bales.		*Bales.*
Cotton	4,962	2,105	5,886	1,801
Hay, including tame and cultivated grasses, coarse forage, wild grasses, and grains cut green	317	*Tons.* 330	1,999	*Tons.* 1,836
Sugar cane	242	2,826	594	2,865
Sorghum	1	5	13	54
	Trees.	*Bushels.*	*Trees.*	*Bushels.*
Apples	359	175	471	163
Peaches	4,005	1,607	5,012	4,511
Pears	287	163	280	422
		Pounds.		*Pounds.*
Pecans	57	2,723	1,885	14,088
Figs	528	25,123	468	5,113
	Vines.		*Vines.*	
Grapes	163	6,260	1,705	4,721
	Acres.	*Quarts.*	*Acres.*	*Quarts.*
Strawberries	1	914	1	914

It will be noted from this table that corn occupies the largest acreage, but that the total production is only a little more than 100,000 bushels in 1909 and 150,000 bushels in 1919. Corn is almost entirely a subsistence crop, being used largely to feed work animals and to supply meal for home use. It constitutes an important part of the food of almost every family. Within the last few years the acreage, and to some extent the yield, of corn has been materially increased, owing to the campaign carried on by educational institutions, agricultural papers, and other agencies urging a more diversified system of farming and the growing of food supplies at home. This movement has also been greatly stimulated by damage to cotton by the boll weevil. Where special efforts are made to produce maximum yields of corn, as in the case of the prize acres of corn-club boys, 85 to 100 bushels or more have been obtained. The varieties of corn commonly grown in the county are Hastings Prolific, Georgia Red Cob, and Mosby's Prolific.

Cotton occupies the second largest acreage, with an average yield of less than one-half bale per acre. The presence of the boll weevil for the last 10 years has demoralized cotton growing, and the acreage has been somewhat reduced. During the hot and dry summers of 1917 and 1918, which retarded the action of the boll weevil, there was an increase in the yield per acre. Cotton is exclusively a cash crop, and the recent attractive prices have caused an increase in acreage this spring (1919). The seed in the past has been used for feed and fertilizer, but present high prices almost prohibit its use for these purposes and it is generally sold. Different varieties of cotton are grown in the county, a few farmers selecting the kind that seems better adapted to their type of soil. Some of the most common varieties grown are King, Wannamaker, Cleveland, Cook's Improved, Half and Half, and Hasting's Bank Account.

The velvet bean is an important crop, ranking next to corn and cotton. In fact, it is regarded by many farmers as the most important crop. Where good seed is used and planted early the crop is rarely a failure. Velvet beans are usually planted with corn, either in every third row with the corn or between the corn rows. The yield of velvet beans averages about 2,000 pounds per acre in the pod or 20 bushels shelled. The velvet bean is used principally as a forage crop for stock and as a soil builder, and to some extent is a cash crop, the seed being sold to mills to be converted into ground feed and oil. The Early Speckle or Ninety-day is the most popular variety, although the pickers say "stingers" on the pod irritate the skin. The Osceola variety, which is just beginning to be grown in the county, has a larger bean and will probably displace the Early Speckle, as the pods do not have the objectionable spines.

Oats have increased both in acreage and yields since 1909. The yield in 1909 averaged 14 bushels per acre, while in recent years oats have averaged 20 to 30 bushels per acre, and in a few cases more. The most common varieties are Red Rust Proof and Hastings Hundred Bushel. The crop is used to a great extent for winter and spring pasture for hogs and cattle and as a cover crop. It is usually planted between the middle of September and the 1st of November. The crop is pastured all winter, until about the 1st of April, and then left to harvest. The oats are usually harvested about the 10th of May and may either be fed in the sheaf or thrashed. Small quantities are sold locally, but most of the crop is used to feed work stock and for pasturage.

Sweet potatoes are grown on practically every farm in the county for home consumption and to a limited extent for local and outside markets. The average yield ranges from 80 to 100 bushels per acre, much larger yields, however, often being obtained. In recent years the sweet potato has been used largely by the pig-club boys as a forage crop for hogs. Many acres are planted in southern Mississippi for this purpose alone.

Sugar cane is grown in small patches on nearly every farm in the area. It is made into sirup, which is principally consumed on the farm, although some is sold to local markets. The average yield per acre during a normal season ranges from 150 to 250 gallons of sirup. As high as 30 tons of sugar cane, or 600 gallons of sirup, have been obtained in the area.[2]

The 1910 census reports 140 acres planted to peanuts in 1909, with an average yield of 20 bushels per acre. The 1920 census reports only 93 acres, with an average yield of slightly over 10 bushels per acre. The crop is grown principally as a field crop for hogs. There are a few farmers who grow the peanut as a hay crop. The small, or Spanish, variety is usually planted.

Cowpeas are grown chiefly as a hay crop, soil builder, and forage crop. Upland rice is grown in small patches on most farms for home use, the yields averaging between 35 and 50 bushels per acre. Potatoes, sorghum, rye, watermelons, and strawberries are grown to a limited extent, principally for home use.

According to the 1910 census, 57 pecan trees produced 2,723 pounds of pecans in 1909. At present (1919) there are many pecan trees in the county, and many new orchards are set out each winter. A large pecan nursery is located at Lumberton. The nursery also grows fairly successfully the Satsuma orange for home use. The trees freeze occasionally, but produce an abundance of excellent fruit. They are not grown on a commercial scale.

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[2] See Miss. Expt. Sta. Bul. No. 129, Sugar Cane for Sirup Making.

Lespedeza, Bermuda grass, crab grass, hop clover, carpet grass, and broom sedge afford good grazing, growing wild in nearly all parts of the area. Bur clover, crimson clover, and white clover can also be grown successfully throughout the county. Lespedeza is being seeded by many farmers for pasture, but so far not enough attention has been given to it as a hay crop. It is usually sown in early spring and under favorable conditions produces about 1½ tons of excellent hay per acre. A combination of lespedeza, Bermuda grass, hop clover, and bur clover gives a permanent pasture for both winter and summer.

In 1909 there were 84 calves sold or slaughtered, 1,220 other cattle, 3,345 hogs, and 348 sheep and goats. The value of dairy products, excluding home use, amounted to $19,467. The 1920 census reports the value of dairy products as $93,836. Larger numbers of live stock of the better breeds are now being raised. Dairying within the last few years has attracted a good deal of attention, and considerable interest is taken in this industry. Farmers are building up dairy herds by the use of common cows and registered males. The Jersey and Holstein are the favorite dairy breeds. The improvement of hogs has not advanced as rapidly, but increased interest along this line within the last few years has caused a marked improvement in the stock on many farms, and the Duroc-Jersey, Poland-China, and Berkshire are fast displacing the long-nosed "piny woods rooter."

In recent years more attention has been directed along lines of diversification, with the aim of producing a greater part of the food consumed on the farm. Live stock, dairy products, cotton, and a few other crops are depended on as the chief sources of income.

In Lamar County the relation between soils, topography, and crops is not very clearly defined. Upland soils having a heavy, tenacious clay subsoil near the surface, and poorly drained bottom land and terrace soils are colder natured and produce later crops than the warmer hill soils or better drained second-bottom and first-bottom soils. The soils having a uniform color in the subsoil have better underdrainage, and as a whole are more productive than those having a mottled subsoil. Well-drained terrace soils and upland soils with deep red or brownish-red subsoils are generally recognized as the best corn soils.

Since the invasion of the boll weevil the old or longer used upland soils are used almost exclusively for cotton. Areas around the heads of small streams, where the soil is well supplied with organic matter, are usually selected for sugar cane. Watermelons are commonly grown on warm, sandy soils. Oats are sown without regard to the kind of soil, on the first land becoming available after the summer crops are removed. While pecan trees in general appear to thrive

best on those soils having good underdrainage, the trees occasionally do well on land with a heavy and not thoroughly drained subsoil.

About the same methods are employed throughout the county in breaking land. One-horse implements are generally used, and the soil is plowed, usually in the spring, to a depth seldom greater than 4 inches. A few farmers use two-horse teams and break the land flat in the fall, turning under the corn and cotton stalks. The German farmers located near Seneca and south of Sumrall usually plow the land in this way. They also construct good high terraces on the slopes, and plant alternate terraces early in spring to prevent washing. Native farmers living in the neighborhood are following their methods.

In growing cotton the land is bedded and the seed planted on the ridges. There is no general rule for the planting of corn; some plant on beds, others on a level surface. Still others ridge their land and plant in the water furrow. The methods of planting corn are usually determined by the moisture conditions at the time of planting. In any case the last cultivation usually leaves the corn on a bed or ridge. Corn is generally planted in rows 3½ feet apart, with plants 18 to 30 inches apart in the row. Velvet beans are planted with the corn or after the corn begins to come up. Some sow cowpeas broadcast at the last cultivation on corn land planted with velvet beans. In some cases cowpeas are planted in the rows and peanuts between the rows. Corn is usually given two to four cultivations, depending on the season.

Cotton is spaced about like corn. Most of the farmers first chop the cotton so as to leave a stalk every 14 to 18 inches, then chop it a second time to remove every alternate plant. It is given more cultivation than corn with side harrows and light one-horse plows of the shovel type. The tendency of the more progressive farmers in growing both cotton and corn is to provide a well-prepared seed bed and to give frequent shallow cultivations.

Oats are usually sown in the fall. Various methods are employed in seeding this crop. Some sow broadcast on a well-prepared flat seed bed and cover with a harrow; others sow on land which has previously been in cultivation and plow the seed under with a turning plow; some drill in the seed on a flat, well-prepared seed bed; and still others sow in a broad ridge or row. Cowpeas are frequently sown after oats for hay, and cowpeas and crab grass constitute the principal cultivated hay crops. The burning off of the land in the winter months retards the development of lespedeza and crab grass and encourages the spread of broom sedge. When fires are prevented lespedeza and crab grass crowd out the sedge. As the first two are excellent hay and pasture plants, their growth should be encouraged.

Sugar cane for seed is selected in the fall, at the time of gathering the crop, and stored in "banks" or beds of soil to prevent freezing. In the early spring, as soon as danger of freezing is over, it is taken from the bank and replanted in rows 5 to 6 feet apart. Many farmers plant their cane in the fall before heavy frost, cutting the stalks in short pieces, laying them in a deep furrow about 15 to 18 inches apart in the row, and plowing two heavy furrows of soil upon it. In the early spring these rows are plowed down or harrowed off. This method saves handling the cane so many times, and gives good results.

As in many sections located in a lumbering region where lumber has been relatively cheap, very little attention is given to the painting of farm buildings. There are a few good houses and barns and some stone silos, but there is a great need for more and better farm buildings, more machinery, and more and better live stock of all kinds.

Crop rotations are not systematically followed, as a general rule. Cotton is often followed by corn, and vice versa, and cowpeas and velvet beans are frequently planted. Any rotation including these latter crops is beneficial to the land. The velvet bean is recognized as a soil builder, but is usually grown for its feeding value, although the residue of roots and vines left after grazing increases the productiveness of the soil. There is a general attempt to build up the soil by the growing of leguminous crops.

The 1920 census shows $54,877 spent for fertilizers in 1919 within the county, an average of $65.10 per farm for the 843 farms reporting. The greater part of the fertilizer is used on cotton, corn, and sugar cane. Cotton usually receives from 200 to 300 pounds per acre of a mixture consisting of equal parts of cottonseed meal and acid phosphate. Corn receives from 100 to 200 pounds per acre of this mixture, but many use acid phosphate alone with good results. Most of the lot manure is applied to the corn land. Where sugar cane is grown on the level uplands, heavy applications of commercial fertilizers containing a high percentage of nitrogen are made, but none is applied where the land is rich in organic matter, as about the heads of streams.

Both white and negro farm laborers are employed, but the percentage of negro laborers is small. The near-by sawmills pay better wages than the average farmer is able to pay and most of the negroes find employment in the mills. This has caused a scarcity of labor on the farms and most of the farm work is carried on by the farmer and his family. When laborers can be obtained they usually receive from $1.75 to $2 a day. Cotton pickers for the season of 1918 received from 85 cents to $1 per hundred pounds. Monthly

wage hands working five days in the week receive from $20 to $35 a month with board.[3]

The farms of Lamar County range from one-horse farms of 20 to 25 acres to farms of several hundred acres. According to the 1920 census, the average farm contains 81.6 acres, but each tenancy is rated a farm. The percentage of farms operated by owners is given as 78.4, the remainder being operated by tenants. Much of the land is rented on shares, the owner furnishing work stock, seed, tools, and one-half the fertilizer and receiving one-half the crop. Some owners supply only the land and fertilizer and receive one-third the crop.

Cut-over stump land can be bought for prices as low as $5 an acre, while cleared and improved land ranges from $12.50 to $35 an acre. The 1920 census reports the average assessed value of farm land as $18.04 per acre.

SOILS.[4]

Lamar County lies within the Gulf coastal plain province and within the longleaf pine region of Mississippi locally called the "piny woods" country.

The upland soils of the county are derived from two main classes of coastal plain materials: (1) Beds of sandy clay, and (2) beds of heavy clay. The former overlie the latter in this area, so that the derivative soils, chiefly the Ruston, Norfolk, and Orangeburg, are

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[3] These wages prevailed at the time of making the survey, 1919. At the time of going to press, 1921, labor is receiving much less.

[4] Small unimportant areas of Swamp and Ruston fine sandy loam in T. 5 N., R. 15 W., fail to join with the soil map of Forrest County because these soils were not mapped along this border in Forrest County. An area of Ruston fine sandy loam in sec. 36, T. 5 N., R. 15 W., and sec. 6, T. 4 N., R. 14 W., joins with the Norfolk loam, rolling phase, in Forrest County. Some Susquehanna fine sandy loam in sec. 5, T. 4 N., R. 14 W., joins with Susquehanna silt loam in Forrest County. An area of Ruston fine sandy loam in sec. 1, T. 4 N., R. 14 W., joins Cahaba sandy loam in Forrest County. There are also some unimportant failures of soils to join up along streams because narrow strips of these were not indicated on the Forrest County map. In T. 4 N., R. 14 W., an area of Ruston fine sandy loam joins Ruston sandy loam and the rolling phase of that type in Forrest County, and an area of Norfolk fine sandy loam in T. 3 N., R. 14 W., joins with Ruston sandy loam and Norfolk loam, rolling phase, in Forrest County. There are some other failures to join up in this township, including an area of Thompson fine sandy loam in Lamar joining with Kalmia loam in Forrest because the first bottom in Forrest at this place was incorrectly mapped as second bottom. The principal cause of failure to join in these counties is due to the fact that Forrest County was not mapped in as much detail as Lamar. Some of the discrepancies may be due to the occurrence of gradational phases near the line.

Lamar joins very well with the Covington soil map in the main. A few slight discrepancies occur in the joining of Susquehanna fine sandy loam in Lamar with Caddo silt loam and Ruston fine sandy loam in Covington. Some narrow strips of stream bottom also fail to join.

The Lamar soil map joins up very well with the Jefferson Davis County map, except that an area of Ruston fine sandy loam in Lamar joins with Caddo fine sandy loam in Jefferson Davis.

An area of Ruston fine sand northeast of Lumberton in Lamar joins with Ruston sand in Pearl River County, but this represents only a slight difference in texture. An area of Swamp in Lamar joins with Bibb very fine sandy loam in Pearl River, and an area of Susquehanna silt loam south of Lumberton in Lamar joins with Norfolk fine sandy loam. Otherwise these maps join very well.

found generally at a higher elevation than those occupied by soils derived from the heavy clay beds—that is, the Susquehanna. The Ruston soils are found on all types of topography existing in the uplands of the area, from steep stream slopes to gently rolling and flat uplands, but most of them occupy gently rolling areas over the higher uplands or divides. The Norfolk soils occur over relatively flat and low areas where the drainage is less well established than in the case of either the Orangeburg or Ruston. The typical occurrence of the Orangeburg soils is on the well-drained stream slopes. The Susquehanna soils are developed mainly on the lower parts of slopes generally occupied higher up by the Ruston, Orangeburg, or Norfolk soils.

The Caddo soils are found as gently sloping, undulating, and flat areas, usually in relatively low situations near streams. They are not so well drained as the Norfolk, but better drained than the Plummer soils, which are found on lower slopes and low flats about drainage ways. The Plummer soils are probably derived in part (the lower subsoil) from the heavy clay beds and in part (the surface and upper subsoil) from material worked down by running water from the adjacent higher soils, including both those from the heavy clay and sandy clay stratum.

The alluvial soils of both the first and second bottoms are composed of material washed from the uplands; that is, mainly from the Ruston, Norfolk, Orangeburg, and Susquehanna soils. The material was deposited by streams over their present or former flood plains. In the first bottoms the material represents comparatively recent deposits. In many parts of the county these soils are quite variable in texture and color within short distances, so that more generalization was used in mapping them than in the case of the upland soils. On the terraces or second bottoms, representing old flood plains of the streams, the material has undergone more change than in the first bottoms, and much of the soil on these terraces resembles certain upland types. In places there is a series of terraces occurring at successive elevations. Usually the material has weathered most completely on the higher terraces, as they are the oldest. There are low-lying areas or terraces subject to inundation after exceptionally heavy rains, and here the line of demarcation between the first and second bottom is difficult to determine. The soil found where these conditions exist usually resembles either the Thompson material of the first bottom or the Kalmia of the second bottom. The two soils differ, as a rule, only in topography, although these low-lying areas are subject to slight overflows of short duration, and some areas were mapped with the second bottom or terrace soils which probably should have been included with the first bottom soils, and vice versa.

The agricultural value of the Kalmia and Thompson series is practically the same in these places, and the mapping of the areas either as terrace soil or first bottom would make no material difference. The poorly drained, gray first-bottom soils of more uniform character are classified as Bibb. The grayish bottoms with yellow subsoil are included in the Thompson series. Small areas of black alluvial material scattered over the county, which would be mapped separately as Johnson if they were of sufficient size, are included with the adjoining predominating types. The gray second-bottom soils with yellow subsoils are included in the Kalmia series, those having a uniform gray character and poorer drainage are mapped as Myatt, while those with dark-brown to red subsoils are classed as Cahaba. The more poorly drained bottoms of variable material and permanently wet condition are classified as Swamp.

There are in Lamar County 20 different soil types, exclusive of Swamp. These are grouped into 11 soil series, of which 6, the Ruston, Norfolk, Orangeburg, Susquehanna, Plummer, and Caddo are upland series.

The types in the Ruston series have gray to grayish-brown soils, underlain by a reddish-yellow to yellowish-red or dull-red, moderately friable subsoil. The series is intermediate between the Orangeburg and Norfolk in the color of the subsoil. Drainage is well established.

The Norfolk types have grayish to light grayish brown surface soils, and a yellow to pale-yellow, usually moderately friable subsoil. Drainage is fairly good.

The Orangeburg series includes types with gray or grayish-brown to reddish-brown soils and a red, friable sandy clay subsoil. The drainage of soils of the series is good.

The types included in the Susquehanna series have gray to reddish surface soils, underlain by a mottled red and gray, or red, gray, and yellow, plastic heavy clay subsoil. Red is nearly always the predominating color in the upper subsoil. Drainage is imperfect on level areas and lower slopes, but good in the rolling areas.

The Plummer series includes types with mottled bluish-gray and brownish soils, underlain by mottled gray or bluish-gray and pale-yellow subsoil carrying small black concretions. The soils occur on low flats about the heads of drainage ways, and are poorly drained.

In the Caddo series are grouped the upland types whose surface soils are grayish and whose subsoil is mottled gray and yellow. A compact layer occurs in the lower subsoil. This is mottled like the upper subsoil or with drab and reddish yellow. The series occupies level to flat areas and the lower parts of slopes.

The alluvial soils of the county are grouped in five series. These fall naturally into two divisions—terrace soils and first-bottom soils. The Kalmia, Myatt, and Cahaba soils represent the former, and the

Thompson and Bibb soils the latter. Parts of the first bottoms are mapped as Swamp.

The types in the Kalmia series have grayish to light-brown soils, underlain by a yellow, fairly friable subsoil. The drainage is fairly good, being intermediate between that of the well-drained Cahaba soils and the poorly drained Myatt soils.

The types in the Myatt series have gray to whitish soils, sparingly mottled with pale yellow, resting on a mottled gray, drab, and yellow subsoil, containing some iron concretions. The lower subsoil is quite compact. These soils occupy the more poorly drained areas of second bottom or terrace.

The types of the Cahaba series have light-brown to brown surface soils and a dull-red or reddish-brown, friable subsoil. They occur in the better drained parts of the second bottoms or terraces.

The surface soils of the types correlated with the Thompson series are grayish brown, and the subsoil is yellow, mottled with gray, various shades of brown, and yellow. These subsoils are subject to overflow and are characteristically poorly drained, although their drainage is somewhat better than that of the associated Bibb soils.

The surface soils of the types in the Bibb series are white or light gray, and the subsoil white, light gray, or mottled light gray, and yellow. Iron stains and black concretionary materials are generally encountered in the lower subsoil. These soils are poorly drained.

Swamp includes undifferentiated soils in the first bottoms, consisting of variable materials, such as give rise to types of the Bibb and Johnson series and to Muck. The areas are permanently wet, usually saturated from the surface downward, and a separation of the areas on a textural basis is impracticable.

The following table gives the name and the actual and relative extent of each soil type mapped in Lamar County:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Ruston fine sandy loam	134,720	42.5	Kalmia loam	3,456	1.1
Orangeburg fine sandy loam	30,336	9.6	Norfolk loam	3,136	1.0
Susquehanna fine sandy loam	25,280	8.0	Ruston fine sand	2,496	.8
Swamp	25,152	7.9	Cahaba fine sandy loam	1,920	.6
Norfolk fine sandy loam	16,320	5.2	Caddo loam	1,664	.5
Thompson fine sandy loam	14,656	4.6	Ruston gravelly sandy loam	1,664	.5
Ruston sandy loam	12,864	4.1	Susquehanna clay	1,344	.4
Orangeburg sandy loam	11,776	3.7	Caddo fine sandy loam	1,152	.4
Kalmia fine sandy loam	9,856	3.1	Myatt silt loam	1,024	.3
Susquehanna silt loam	9,856	3.1			
Bibb fine sandy loam	4,096	1.3	Total	316,800	
Plummer silt loam	4,032	1.3			

RUSTON GRAVELLY SANDY LOAM.

The Ruston gravelly sandy loam to a depth of 2 or 3 inches is a grayish loamy sand to fine sand, in places ranging to medium sand, passing into a yellow or pale-yellow gravelly loamy sand or fine sand, underlain by reddish-yellow to dull-red gravelly sandy loam, fine sandy loam, or sandy clay.

Conspicuous amounts of chert gravel and water-worn quartz gravel are scattered over the surface and throughout the soil mass, interfering with cultivation. In a few spots the lower part of the subsoil consists of a mottled red, yellow, and gray, rather plastic clay, resembling the subsoil of the Susquehanna series.

This soil is found on slopes, knolls, and sharp ridges. Small areas are located west of Fanning, 3 miles west of Baxterville, north of Tatums Camp, near Burnt School, east and west of Okahola, southwest of Oak Grove Church, north of Oloh, west and south of Breland, and south of Military Church.

Agriculturally this is not an important soil. In places there is a scattering growth of pine, but most of the type consists of cut-over land. Drainage is good.

The gravelly material constitutes good road-building material and has been used locally for surfacing some of the roads. With the increasing interest in the building of gravel roads, the type may become important as a source of material.

RUSTON FINE SAND.

The surface soil of the Ruston fine sand, to a depth of 3 or 4 inches, is a gray to brownish-gray fine sand, ranging in places to medium sand, underlain by a light-gray or yellowish-gray sand, which at about 16 inches passes into a reddish sand extending to a depth of 36 inches or more. In the virgin soil there is enough humus in the first few inches to give the soil a slightly dark color, but below this the sand gradually assumes a light-reddish color, and in some instances, as in fringes along the borders of sand dunes, the color is decidedly red. There are included areas whose surface soil consists of a loose, incoherent, coarse sand ranging from only a few inches to a foot or more in depth. There are also some included areas of Norfolk fine sand, which has a pale-yellow, loose, fine sand subsoil. As observed in road cuts and according to information gathered where wells have been sunk on this type, the sand often extends to depths of 6 to 20 feet or more.

While the extent of this type is somewhat limited, there are several comparatively large tracts, notably the areas near Moss Lake, near Baxterville, south of Yawn School, and northeast of Purvis.

The topography is billowy or "hummocky," with occasional short, steep slopes facing in a southerly direction. The type, however, oc-

curs over hills and valleys without much regard to topography. As a rule it occupies ridges or hillocks, and is rolling. The drainage is good to excessive. A number of creeks, heading in this type, become fairly large streams within comparatively short distances.

Little or none of the type is under cultivation, and from an agricultural standpoint it is of little importance. It supports a growth consisting principally of scrubby oaks, with a few scattering longleaf pine. With liberal fertilization the more nearly level areas could be used for the growing of early truck crops. Soil of this type is sold with the surrounding type for $5 to $15 an acre.

RUSTON SANDY LOAM.

The Ruston sandy loam surface soil typically consists of 4 to 6 inches of gray, brownish-gray or light-brown sand to sandy loam, the texture in places grading fine and in others coarse. This comparatively shallow layer is underlain to a depth of about 12 inches by a subsurface of yellow to pale-yellow loamy sand to sandy loam. The subsoil is a reddish-yellow to yellowish-red, friable, sandy clay to a depth of 24 to 30 inches, where it is underlain by sandy loam or loamy sand, the clay content having decreased and the sand content increased. There are included areas of Ruston fine sandy loam.

There is considerable variation in the depth of the sandy surface soil which in some places may extend to a depth of 18 or 20 inches. In such areas the material usually consists of a loose medium textured sand to slightly loamy sand. There is more variation in the depth of the surface soil of the Ruston sandy loam than in that of the Ruston fine sandy loam.

A few areas with gently rolling and undulating topography exist, but the type in general is rougher and more rolling than the Ruston fine sandy loam; and areas of rough and gullied land occur on some of the steeper slopes, though, as a rule, the ridges are rounded and the slopes smooth. A large proportion of this soil is steeply sloping. Both the surface and subsoil drainage are satisfactory.

Where the included areas with gently rolling and undulating topography occur in cultivated fields much of the surface soil is darker colored than that of the more sloping areas. This darker color is due to humus worked into the soil by growing velvet beans and other crops supplying organic matter. These areas are favorable to farming, and yields average with the best of the Ruston fine sandy loam type. The typical soil, however, is very deficient in organic matter, and therefore the yields of crops are low, unless the land is manured or fertilized rather liberally. Very little of the type is under cultivation, the topography of much of it not being especially

favorable for general cultivation. It is used mostly for pasture and at present it would seem best, with the large areas of available undeveloped land yet to be put in cultivation, to continue the use of this type for grazing. Excellent pastures can be had where the burning off of the land is prevented and the land allowed to become well set with Bermuda grass, lespedeza, and native grasses. When cultivated, terraces should be constructed in order to prevent washing.

The included more nearly level areas have about the same value as the Ruston fine sandy loam, but on most of the type land can be bought for a much lower price.

RUSTON FINE SANDY LOAM.

The typical surface soil of the Ruston fine sandy loam, to a depth of 1 to 4 inches, is a grayish to slightly brownish-gray loamy fine sand to fine sandy loam, which passes into a subsurface layer of yellow to pale-yellow loamy fine sand to fine sandy loam, extending to a depth of 10 to 15 inches. The subsoil below this depth is either (1) a dull-red or yellowish-red to buff-colored sandy clay or fine sandy clay the condition in the better-drained areas which predominate in this county; or (2) a yellowish-red fine sandy clay, as in the more poorly drained portions, the color here approaching in places that of the Norfolk subsoil. The bed of sandy clay usually extends to a depth of 20 to 30 inches, where, as a rule, it rests on a reddish fine sandy loam.

Small rounded gravel of chert and quartz is of common occurrence, especially on slopes and knolls. The more gravelly areas are shown on the soil map by gravel symbols, but where the material contains enough gravel to interfere with cultivation it has been mapped as the Ruston gravelly sandy loam.

While the subsoil is typically a fine sandy clay in texture and yellowish red or reddish yellow in color, it varies considerably in both these particulars. In many places mottlings of bright red and yellow occur in the lower part. In the better drained areas the material is redder, and in the poorer areas of drainage yellower. In a few areas it is bright red, with layers or streaks of yellow and in places gray, the red resembling that of the Orangeburg subsoil. Where this condition exists the texture is a very friable sandy clay. These areas are small and for this reason were included with the typical Ruston fine sandy loam in mapping. Variations also occur in the texture of the surface soil, which in places approximates a very fine sandy loam or silt loam, such areas occurring on smooth, nearly level crests of divides. On the other hand, there are a few small patches where the soil contains sufficient medium and coarse sand to give it a harsh feel.

The Ruston fine sandy loam is the most extensive single type of soil in the county. It occurs throughout the county on the gently sloping uplands, crests of ridges, and higher divides, and for the most part in the better drained situations. The surface varies from undulating to gently rolling, but there are many slopes that are fairly steep, and which under cultivation should be protected by terracing. The structure of the material of the subsoil not only admits of a comparatively rapid absorption of rainfall, but the porosity is such that excellent capillarity is induced. Thus the soil moisture moves readily whenever the balance is disturbed by evaporation at the surface or the requirements of growing plants.

The Ruston fine sandy loam is the principal agricultural soil of the county. At present the larger part of the type is in the condition of recently cut-over land. Considerable farming, however, is done on this type. It is used for the growing of sugar cane (for sirup), sweet potatoes, corn, velvet beans, cotton, rye, cowpeas, oats, lespedeza, watermelons, peanuts, pecans, Egyptian wheat, upland rice, Irish potatoes, and garden vegetables. The predominating crops and those most commonly grown are corn, cotton, velvet beans, cowpeas, sugar cane, oats, potatoes, and vegetables. Hogs, cattle, sheep, and goats are raised. The cut-over areas are used advantageously for grazing. All the products are marketed to some extent. Velvet beans are used chiefly as a field forage for stock, although some are crushed in the hull for feed for cattle, horses, hogs, and sheep. Dairying and hog raising are successfully carried on to a limited extent. Corn yields ordinarily 18 to 20 bushels per acre. Where better cultural methods are used, the yield in favorable years ranges from 20 to 25 bushels per acre, while some prize boys' corn club acres have produced 100 bushels or over. Cotton produces well when the boll weevil is not destructive, the fields ranging from one-half to one bale per acre. In 1917 yields of one bale per acre were obtained by many farmers.[6]

Few estimates of the yields of velvet beans are obtainable, as the greater part of the crop is pastured, but in a few cases where the beans have been picked, yields of 1,000 pounds of beans in the pod per acre are common and 2,000 pounds are often obtained.

Sugar cane yields from 75 to over 200 gallons of sirup per acre, sweet potatoes 50 to 120 bushels, Irish potatoes 85 to 100 bushels, and upland rice about 35 bushels per acre.

Prepared fertilizers are used extensively on this soil. In recent years acid phosphate alone has been used with good results, especially where the land grew velvet beans or some legume the year be-

[6] The summer of 1917 was very dry in Lamar County, which so retarded the development of the boll weevil at a critical time in the growth of the plant that this large yield was possible.

fore. A mixture of acid phosphate and cottonseed meal in equal proportion by weight or in the ratio of one of meal to two of phosphate is used to some extent. The amount of fertilizer applied per acre on this type of soil depends on the crop to be raised, but the average is about 200 pounds per acre.

The type supports a timber growth of longleaf pine principally, with some shortleaf pine, water oak, blackjack oak, and post oak.

The recently cut-over land sells for $5 to $10 an acre. Improved land near lines of transportation averages $15 to $25 an acre.

This soil is not naturally very productive. The greater part of it, however, has a sandy clay subsoil of a character that makes the task of building up the productiveness comparatively easy. The greatest needs are gradually deeper plowing and more organic matter. The organic content can be increased by plowing under stalks and trash of all kinds, by growing and plowing under legume crops and winter cover crops, and by raising more live stock and using all the available manure. Erosion and the consequent loss of humus should be prevented as far as possible. By following these methods yields can be very greatly increased and in many places doubled.

NORFOLK FINE SANDY LOAM.

The Norfolk fine sandy loam is a gray loamy fine sand, 1 to 3 inches deep, overlying pale-yellow loamy fine sand or fine sandy loam, which at depths ranging from about 8 to 14 inches passes into yellow, friable, fine sandy clay, which is usually more sandy and more friable in the lower than upper part. In places where the drainage is imperfect gray and reddish-yellow mottlings may be present to a slight extent in the lower subsoil, such areas representing an approach toward the characteristics of the Caddo fine sandy loam.

The type occurs on the flat tops of ridges and on the gentle slopes and flat to gently undulating, lower lying areas near streams, and has a comparatively smooth topography. It grades into the Ruston fine sandy loam so gradually that boundaries can not be easily drawn between the two soils. There are a few small patches of Ruston fine sandy loam and of Caddo soils included with this type. In places considerable fine quartz gravel is present, but this does not interfere with cultivation. The more gravelly areas are shown on the map by gravel symbols.

The largest areas of this type are found in the vicinity of Yawn School, west of Montague School, and east and northeast of Okahola. Other areas of smaller size occur throughout the county.

While the type for the most part is well drained, the surface is not so sloping as to cause washing or gullying. The more rolling areas, where formed, are terraced to prevent any washing of the soil. Some

of the flatter areas near the stream courses are not well drained, but these can be drained at a comparatively low cost by tile or open ditches.

A comparatively small part of the type is under cultivation at present (1919). The native growth is the typical upland growth of the region; longleaf pine, with an occasional small oak. The type consists mainly of recently cut-over land.

The principal crops are corn, cotton, velvet beans, cowpeas, and sweet potatoes. Cotton yields from one-half to three-fourths bale per acre, depending on the activity of the boll weevil. Corn yields from 12 to 18 bushels per acre, the yields varying with the cultural methods used and the amount of fertilizer applied. Berries, small fruits, melons, and garden vegetables are also grown.

In the surface few inches of the virgin soil there is an appreciable amount of organic matter, but soon after cultivation this constituent is so reduced that commercial fertilizers are necessary to maintain crop yields. Applications of fertilizers usually range from 100 to 300 pounds per acre. A mixture of two parts of acid phosphate and one part of cottonseed meal is chiefly used.

Recently cut-over land sells for $5 to $10 an acre, and improved land for $15 to $20.

The Norfolk fine sandy loam is deficient in organic matter. The growing and turning under of legumes together with the application of barnyard manure will increase the supply of humus. Cowpeas, soy beans, and velvet beans, or some other legume should be grown as a regular step in the rotation. Winter cover crops should be planted more extensively and turned under in the early spring. An application of lime[7] at the rate of 2 tons of unburnt lime per acre probably would prove very beneficial to this soil.

NORFOLK LOAM.

The surface soil of the Norfolk loam, to an average depth of 3 to 5 inches, consists of a gray to light grayish brown loam relatively high in very fine sand and silt. The subsurface soil consists of a light-gray to pale-yellowish loam extending to an average depth of 10 to 12 inches. The subsoil is friable fine sandy clay to silty clay, which becomes more sandy and more friable below a depth of 24 to 30 inches. The color of the typical subsoil is yellow, though in places there are some gray and occasionally some brown and red streaks. In the first few inches of the virgin soil there is enough humus to impart a rather mellow structure, and give a much darker tint than prevails in the subsurface layer. In cultivated fields the surface has a somewhat ashy-gray color, unless well supplied with

[7] Delivered price of crushed lime rock from the Waynesboro plant to Purvis would not be over $2 a ton.

organic matter. In places the subsoil is slightly sticky, but usually there is enough fine sand to give a rather high degree of porosity and prevent that density of structure which characterizes the subsoil of the Susquehanna type.

The largest areas of this type are located along the county line east of Sumrall, south of Dearman Church, northwest of Corinth Church, and near Yawn School. Smaller areas lie in the vicinity of Tyner School, Powell School, and southeast of Sumrall. A few areas of Caddo silt loam are included with the type as mapped.

The Norfolk loam consists chiefly of recently cut-over land. It occupies flat tops of ridges, gentle slopes near streams, and gently undulating areas. The drainage is fairly good, little of the type requiring artificial drainage. Ditching probably would be beneficial on the level areas.

Only a very small proportion of this type is under cultivation. Most of it supports a growth of broom sedge, with some lespedeza and Bermuda grass. It is not considered an important type, and is used chiefly as open range.

Crops grown on this soil and best suited to it are similar to those grown on the Norfolk fine sandy loam, and the yields are about the same. The type also has about the same selling price as the Norfolk fine sandy loam.

The Norfolk loam is considered a somewhat colder soil than the Norfolk fine sandy loam, and there is evidence of more acidity. Crushed lime rock applied in quantities of not less than 2 tons per acre would probably improve the physical and chemical condition.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Norfolk loam:

Mechanical analyses of Norfolk loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
424225	Soil	0.3	1.2	2.5	15.2	23.2	50.2	7.2
424226	Subsoil	.0	.9	1.8	11.0	18.4	48.7	19.3

ORANGEBURG SANDY LOAM.

The Orangeburg sandy loam consists of a layer of grayish-brown to brownish sandy loam, grading at about 4 to 6 inches into a subsurface layer of reddish sandy loam, which is underlain at about 12 inches by a red, friable sandy clay subsoil. This soil carries a conspicuously larger amount of gravel on the surface than the fine sandy loam type. In places ferruginous sandstone fragments, varying from a few inches to 3 feet or more in diameter, also are scattered over the surface.

This type occurs as broken areas over the slopes and as small fringes surrounding the heads of streams. The largest areas lie along Black Creek in the northwestern part of the county, near Baxterville, Corinth School, and Oloh, along Perkins Creek, and along Upper Little Creek near Rocky Branch Church, while numerous small patches are scattered throughout the county.

The surface of the type as a general rule is rougher than that of the Orangeburg fine sandy loam; a few small, level patches occur, but as a whole the topography is rolling to hilly. Erosion has been very active in some places, as shown by deep gullies with an abrupt drop of from 40 to 80 feet. The drainage in most places is excessive.

Owing to its topography, the type is not considered agriculturally important, and very little of it is under cultivation. A large proportion of it is in the condition of recently cut-over land; the rest is forested mainly with longleaf pine.

Where the type is cultivated broad terraces are required to prevent erosion. It is considered a leachy soil, and annual applications of commercial fertilizers are necessary to insure profitable results. It is used principally for grazing.

Where cultivated, it is admirably adapted to the production of early truck crops. It warms up quickly in the spring, and where cotton is planted it matures earlier than on other types, this being an advantage in combating the boll weevil. It has a lower selling price than most of the upland soils, probably owing to its topography. In other sections of the State where the type occurs and the topography permits, it is used profitably for the production of peanuts, cabbage, watermelons, strawberries, and grapes.

ORANGEBURG FINE SANDY LOAM.

The surface soil of the typical Orangeburg fine sandy loam is a grayish-brown to brown loamy fine sand to fine sandy loam, grading at about 3 or 4 inches into yellowish to reddish fine sandy loam, which is underlain at an average depth of between 8 and 10 inches by red, friable, fine sandy clay. The lower subsoil, below 20 to 30 inches, as a rule contains more sand and less clay than the overlying material and is more friable, although more compact in places. This lower material ranges from a decidedly sandy clay to a loamy fine sand or sand. The upper subsoil is often yellowish red, but a bright-red color is reached at depths of 12 to 18 inches. In places the type grades into the Ruston soils, so that no sharp boundary can be drawn between these soils, but the Orangeburg soils in general have the brighter red subsoil. However, there are a few small areas which include some of each type. In fields under cultivation, where vegetable matter has been worked into the soil, the surface has a brown color.

The Orangeburg fine sandy loam is characteristically found on comparatively steep slopes and about the heads of small drainage ways. Usually the most typical development of Orangeburg soils occurs around the heads of the ravines. There are frequently washed patches of red clay loam and clay, representing areas in which the clay subsoil is exposed or brought near the surface. Such patches, however, are very small and could not be mapped separately. There are also a few gently rolling to undulating areas of small size, but the surface in general is hilly or broken and in some places gullied. The roughness of the topography can be judged fairly well by the number of small streams. The granular structure of the surface soil and subsoil insures good capillarity and aeration. Drainage, both surface and underground, is good.

The largest areas are situated west of Clyde, west of Montague School, in the vicinity of Grantham School and Oak Grove Church, south of Midway School, and near Oral Church. Other areas of smaller size are scattered over the county.

The Orangeburg fine sandy loam type is considered very productive, in fact, a stronger soil than the Ruston soils, but owing to its topography, which in Lamar County generally is not so favorable for farming, it is not as important as the Ruston fine sandy loam. Those areas having a gently rolling to level surface are considered among the best soils of the county. Only a small part of the type is farmed. Most of the level areas are free of stumps and under cultivation, the others are in the recently cut-over condition or are still forested with longleaf and scattering shortleaf pine.

Corn, cotton, cowpeas, and sugar cane are the principal crops. This is considered an excellent peach soil, and pecan trees seem to do well. The yields of all crops are larger as a rule than those produced on the Ruston fine sandy loam. Some farmers who cultivate both the Orangeburg and Ruston soils state that the Orangeburg produces as much corn or cotton without fertilizer as the Ruston does with fertilizer, and about 50 per cent more where equally fertilized.

The same methods of fertilization and cultivation are used on this type as on the Ruston soils. The type responds more readily to fertilization than the other soils of the county and probably shows their effect for a longer time after application.

Level areas of this type are valued at $25 to $30 an acre, while the more broken land can be bought for a much lower price.

Methods suggested for improving the Ruston fine sandy loam apply as well to this type.

SUSQUEHANNA FINE SANDY LOAM.

The soil of the Susquehanna fine sandy loam is a grayish fine sandy loam or loamy fine sand, passing at about 3 inches into pale-yellow loamy fine sand or fine sandy loam, which extends to depths of 6 to 15 inches. The subsoil consists either of (1) yellow clay or fine sandy clay which passes into mottled red and gray, plastic, heavy clay, or of (2) red, plastic, heavy clay mottled below with gray or yellow or both, the gray color increasing with depth. In places there is a surface covering of coarser material, the soil ranging in texture to a sandy loam, and small rounded gravel of chert and quartz is common.

The type occurs in narrow strips around the heads of streams and also in larger bodies. The largest lie in the vicinity of Sumrall, Lumberton, Pitman Creek School, Clyde Camp, 5 miles southwest of Baxterville, and south of Breland. The typical position is along slopes near drainage ways and in the lower or saddle situations in ridges, the lower areas crossing ridges between the heads of drainage ways. The type includes some eroded patches of Susquehanna clay.

The topography of the type is rolling to gently sloping or comparatively smooth. Owing to the impervious subsoil, the underdrainage is imperfect, but where the type is rolling the surface drainage is usually good.

Only a small part of the type is cultivated. It is harder to work into a good tilth than the Ruston soils, and crops are not so productive where the same amount of fertilizers and cultivation are given the two kinds of soil. Fair yields of corn, cotton, and grasses are produced in favorable seasons and with heavy applications of fertilizers. The use of lime on this type has proved beneficial in other sections of the State. The Susquehanna fine sandy loam is probably best suited to small grains, such as oats, and for use as pasture.

The price of this type ranges from $5 an acre for cut-over land to $12 or more for cleared and improved land.

SUSQUEHANNA SILT LOAM.

The surface soil of the Susquehanna silt loam is a grayish to light-brownish silt loam, passing within a few inches into pale-yellow silt loam, and at about 6 to 8 inches into pale-yellow silty clay loam. This is underlain at about 10 to 14 inches by yellow silty clay which passes quickly into mottled red, yellow, and gray heavy plastic clay. The immediate surface is dark-colored in places. Small areas of very fine sandy loam occur within the boundaries of this soil. These are too small to warrant separation on the map.

The type occurs as large and small areas over the county. Some of the largest areas are situated near Sutton School and north of Mt. Vernon Church. Smaller areas lie north of Clyde, east of Sumrall, north of Tatums Camp, 2½ miles southwest of Talowah, south of Lumberton, and in the extreme southwestern corner of the county.

The Susquehanna silt loam has a gently sloping to undulating topography, but the areas are low lying and both surface drainage and underdrainage are imperfect, during wet seasons water often standing on the surface of the more level areas for some time.

Very little of the type is under cultivation except about the towns. Near Lumberton it is farmed to some extent by Germans. Most of the type has been cut over recently, and this land is used as an open range. The type is acid both in its surface soil and subsoil.

This soil has about the same value as the Susquehanna fine sandy loam.

SUSQUEHANNA CLAY.

The Susquehanna clay consists of 1 to 3 inches of gray silt loam to silty clay loam, passing abruptly into red, mottled gray, and yellow, heavy plastic clay, the gray color becoming more pronounced with depth and having in the lower part of the 3-foot section a greenish tint.

The type represents eroded areas of Susquehanna fine sandy loam and Susquehanna silt loam. It is of small extent. The largest areas lie in the southwestern corner of the county and 2½ miles north of Epley; smaller areas are mapped east of Sumrall, 1½ miles north of Caney Church, and near the confluence of Half Moon and Hurricane Creeks. The type is not important, and none of it is under cultivation.

PLUMMER SILT LOAM.

The typical Plummer silt loam is a mottled bluish-gray and brownish silt loam, passing at about 6 to 10 inches into mottled gray or bluish-gray and pale-yellow silty clay loam to silty clay, carrying some small black concretions. In places sand, washed from higher lands, covers the surface. Some gravel is found on the lower slopes and around the higher drainage heads. The immediate surface in many places is dark colored, owing to the presence of an abundance of decaying vegetable matter.

The Plummer silt loam has a patchy occurrence. It is developed on flats and low slopes about the heads of drainage ways. Small areas are found in the southwestern corner of the county, east of Lumberton, near Fanning, north of Tyner School, west of Moss Lake, 3½ miles southwest of Lee School, west of Arnold Line School, and in the vicinity of Sutton School.

The surface drainage and underdrainage are both poor, owing to the low position of the type, to seepage, and to the impervious heavy clay substratum. In the summer the Plummer silt loam which is not kept wet by seepage dries out and hardens in periods of drought.

The type is not important agriculturally and very little of it is in cultivation. Gallberry, "moss pine," broom sedge, and various grasses are plentiful. Crawfish holes are common.

A few small patches of rice were noticed on this type, and probably it is suited to the growing of rice in a small way for home use, but the best all-round use is for pasturing stock.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Plummer silt loam:

Mechanical analyses of Plummer silt loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
424209	Soil	0.6	1.8	1.1	4.8	8.6	67.1	15.9
424210	Subsoil	.7	1.1	1.2	5.9	9.7	59.3	22.1

CADDO FINE SANDY LOAM.

The surface soil of the Caddo fine sandy loam consists of a gray to brownish-gray fine sandy loam passing at 5 or 6 inches into a pale-yellow fine sandy loam which extends to a depth of 10 or 12 inches. The subsoil is a yellow fine sandy clay to clay, which in the lower part is mottled with gray and in places contains plastic sandy clay mottled white and yellow. At depths varying from 15 to 30 inches occurs a compact layer which is mottled yellow, drab, or gray and reddish yellow. Black concretions of small size are common in the soil and subsoil of the poorly drained areas.

In a few places the gray color and the compaction are not so pronounced, the soil in such areas resembling either the Norfolk fine sandy loam or Susquehanna fine sandy loam.

The type has a rather patchy occurrence in the county and is of small extent. Areas lie southwest of Mt. Zion Church, 3 miles west of Talowah Church, northwest of Sumrall, and west of Powell School.

The Caddo fine sandy loam occurs on slopes, and as flattish areas occupying a lower level than the other upland soils. Drainage is imperfect.

The type is unimportant agriculturally. It supports a growth of native grasses and some scrub oak. Most of it is cut-over land, and none of it is in cultivation. It has about the same selling price as the Caddo loam and the recommendations for improving the loam apply to this type.

CADDO LOAM.

The Caddo loam consists of a brownish-gray to gray or light-brown loam, passing at a depth of 3 to 5 inches into pale-yellow loam, which extends to a depth of 10 to 15 inches. The subsoil is a yellow or pale-yellow, friable, fine sandy clay or silty clay, which below a depth of 20 inches shows mottlings of gray and orange yellow. Usually at this depth or deeper there is encountered a compact layer of very fine sandy clay. In places where the drainage is poorest the soil is brown, the subsurface layer is mottled rusty brown and gray, and the subsoil is pale yellow in the upper part and compact and mottled grayish, yellowish, and rusty brown in the lower part. Here the more compact layer may consist either of fine sandy clay or fine sandy loam. Black concretions of small size are common in the soil and subsoil in the poorly drained situations. A few areas of Caddo silt loam, too small to map separately, are included with this type.

The Caddo loam is typically developed on low upland areas where the drainage is imperfect. It is associated with the Norfolk, Plummer, and Susquehanna soils. Some of the largest areas are found south of Lost John, southeast of Baxterville, west of Mount Vernon Church, northwest of Sutton School, and in the northeastern corner of the county. The type originally was forested with longleaf pine, but most of the lumber has been removed by the lumberman.

The type is characterized by gentle, low slopes and flat to gently undulating areas. The soil often occupies the gentle slopes between the upland and the second-bottom soils—that is, the slopes along the outer margin of stream terraces. The type is poorly drained owing to its comparatively level surface and the impervious nature of the subsoil.

The Caddo loam is not important agriculturally because of its low natural productiveness. Only a small part of it is in cultivation. Most of it is cut-over land, supporting a growth of scrub oak and native grasses, which afford free range for cattle, hogs, and sheep.

Where good cultural methods are used and the drainage is improved, fair yields of corn, velvet beans, cotton, and oats have been obtained. Acid phosphate and some cottonseed meal are the principal commercial fertilizers used on this type.

This land has about the same value as the other cut-over soil types, averaging about $5 an acre. Where the land has been cleared of stumps and put under cultivation, a fair average price would be about $12.50 an acre.

Drainage is the first requirement of much of this land, and lime the next. Its productiveness would be increased by growing and turning under legumes in summer and cover crops in winter.

Excellent yields of oats and of cowpeas have been obtained on this type in one season. The land is plowed deep in the late summer or early fall. Acid phosphate at the rate of 400 pounds per acre is applied with barnyard manure or is drilled in with the oats.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Caddo loam:

Mechanical analyses of Caddo loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
424215	Soil	0.8	4.8	6.4	20.5	13.9	43.1	10.6
424216	Subsoil	1.3	6.8	8.8	26.3	15.0	24.5	17.1

KALMIA FINE SANDY LOAM.

The surface soil of the Kalmia fine sandy loam consists of an upper layer, 2 or 3 inches thick, of gray to dark-gray fine sand to loamy fine sand and a lower layer of pale-yellow fine sand to fine sandy loam extending to depths betweeen 10 and 20 inches. The subsoil is a yellow friable fine sandy clay or pale-yellow fine sandy clay mottled with gray and orange yellow.

The typical soil occupies second bottoms 10 to 20 feet above the normal level of the streams. Much of the type mapped lies barely above overflow and is spotted with depressions which prevent the water from running off readily.

It occupies the terraces or second bottoms along Black and Little Black Creeks, Lower Little Creek, Gully Creek, Half Moon Creek, Tick Creek, east of Lumberton, and smaller areas throughout the county.

The surface of the type is level, but in low-lying areas there are depressions and the level surface is somewhat interrupted. These depressions are poorly drained and include patches of Johnson, Bibb, or Myatt soils too small to map. The typical soil is sufficiently well drained in most places for cultivation, but all the type would be benefited by ditching.

Probably about 20 per cent of the Kalmia fine sandy loam is under cultivation, the rest being either recently cut-over land or areas forested with longleaf pine and a few scrub oaks. The principal crops are corn, cotton, sugar cane, and sorghum. Corn yields from 10 to 18 bushels per acre, depending on the tilth of the soil and amount of fertilizer applied. Cotton averages between one-fourth and one-half bale per acre under existing boll-weevil conditions.

A mixture of cottonseed meal and acid phosphate, applied at the rate of 200 pounds per acre, is the principal fertilizer used. In addition to this, all available barnyard manure is applied to the fields.

The selling price of this land ranges from $5 an acre for cut-over land to $20 or $25 an acre for improved land near railroads.

In some sections of the State the Kalmia fine sandy loam has been so improved by tile drainage, the application of lime, and the growing of leguminous crops, such as crimson clover, hairy vetch, cowpeas, and velvet beans, that large yields of crops are obtained and the land is highly valued. The same practice is recommended for the Kalmia fine sandy loam in Lamar County. The level topography of the type is particularly favorable for bringing the soil up to a high state of cultivation.

Apples, grapes, and figs do well on this type and should be grown more extensively, at least to supply local needs.

KALMIA LOAM.

The surface soil of the Kalmia loam consists of 10 or 12 inches of fine-textured loam, having a gray to brownish-gray color on the immediate surface and light-gray to yellowish gray color below. The subsoil consists of a pale-yellow loam to fine sandy loam, which at a depth of 18 to 20 inches is underlain by a pale-yellow fine sandy clay to silty clay mottled with gray and yellowish brown. Where the drainage is poor the mottling is more pronounced, some red mottlings occur, and the structure is somewhat plastic. In the better drained situations the subsoil has a crumbly structure desirable in all clayey subsoils, and the mottling is not so much in evidence. The surface soil in many places is a silt loam, but owing to its patchy occurrence and the close relation of the two soils this variation was mapped as Kalmia loam.

The largest areas of this type are found on the second bottom of Black Creek and near Arnold Line School. Areas are also found on the second bottoms of Wolf Creek, Big Creek, Rooty Creek, and the upper part of Monroe Creek. The type occurs along the stream courses as low terraces just above overflow.

The topography of this soil in general is flat, although in places low-lying water-logged areas give the surface a somewhat dissected appearance.

The type as a whole is in need of both surface drainage and underdrainage. Only one small area was found to be in cultivation, and this was situated on a somewhat higher level than the average. Most of the type is covered with a somewhat open forest, consisting mainly of shortleaf pine with a few hardwoods, principally small oaks. The undergrowth consists of grasses and gallberry bushes. Where

the drainage is well established the grasses afford excellent pasturage.

Under present conditions the Kalmia loam is not considered an important soil and it has little value except for grazing. The reclamation of most of this land, however, is entirely feasible. Practically all of it has sufficient elevation to insure adequate fall in the main ditches without extending them very far. If relieved of excess surface water the soil would respond well to tillage and fertilization.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Kalmia loam:

Mechanical analyses of Kalmia loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
424221	Soil	0.0	0.6	1.1	19.2	29.7	35.3	14.2
424222	Subsoil	.0	.8	1.6	30.1	23.5	31.1	12.9

MYATT SILT LOAM.

The typical Myatt silt loam is a light-gray silt loam, rather compact when dry and slightly puttylike when damp. This is underlain at about 8 inches in well-drained areas by a subsoil of silty clay, mottled yellow and gray or drab in the upper part and brownish and yellowish in the lower part. Soft iron concretions usually occur in this deep stratum. The subsoil of the poorly drained areas is a rather dense silty clay of a steel-gray to light-drab color, less mottled than the typical subsoil and carrying a smaller percentage of concretionary material. In many places there is encountered at various depths in the subsoil a compact layer of whitish silty clay loam 2 or 3 inches in thickness. This layer is usually encountered at depths between 25 and 30 inches and in places is so impervious that it interferes with the circulation of both air and water. The soil and subsoil are distinctly acid.

This type has a rather patchy occurrence over the county. It is found along Little Black Creek, east of Talowah, near where Bear Bay runs into Black Creek, northwest of Caney Church and north of Pitman Creek School. The type occupies low, flat areas on the higher terraces.

The topography is flat or nearly level, and the drainage, both surface and underground, is imperfect.

Very little of this soil is under cultivation. Where it is farmed it produces fair yields of oats, lespedeza, rice, and those grasses adapted to poorly drained soils. Gallberry bushes are numerous in the recently cut-over areas.

The most important step in the improvement of this soil is drainage. Crushed limestone applied broadcast at a rate of not less than 2 tons per acre and the planting of leguminous crops to be plowed under would be of much benefit.

The Myatt silt loam has recently been recognized as an excellent soil for the production of strawberries. This crop is raised rather extensively on this type near Sanford, in Covington County.

The type, as mapped, includes some Myatt fine sandy loam, which is a grayish to whitish fine sandy loam, underlain at 6 to 10 inches by light-gray silty clay loam to silty clay, mottled with yellow and rusty brown. The first few inches of the surface soil when moist have a drab-gray color, but are ashy gray when dry. There are only a few small patches of this description in the county. These occur along Jacks Creek, southeast of Clyde Camp, west of Powell School, and northeast of Watts School. They represent the Myatt silt loam with a surface deposit of sandy material, either washed down from the adjacent uplands or deposited by the stream during recent overflows.

CAHABA FINE SANDY LOAM.

The typical Cahaba fine sandy loam, to an average depth of 6 or 8 inches, is a brown to light-brown fine sandy loam to loamy fine sand. This is underlain by a reddish-yellow fine sandy clay, which at a depth of 12 inches or more passes into a reddish-brown, friable fine sandy clay. In the lower part of the 3-foot section the subsoil carries a higher percentage of sand than in its upper layer. The surface of the type in its virgin state is somewhat darker in color than in the cultivated areas, owing to a higher content of humus.

The Cahaba fine sandy loam occurs only as small areas in this county. It lies along Black Creek, southeast of Pine Ridge Church, 2 miles south of Corinth School, near Lumberton, south of Grantham School, in the forks of Perkins and Black Creeks, along Lower Little Creek, and 2½ miles southeast of Oloh. Other small isolated areas are found along the stream courses.

The type occupies terraces 10 to 20 feet above the level of the streams and is not subject to overflow. The topography is smooth to gently sloping toward the streams. Both surface drainage and underdrainage are generally very good.

This type of soil is recognized as favorable for general farming, and a large part of it is cultivated. Agriculturally it is one of the most important alluvial types in the county. It was originally forested with pine, white oak, sweet gum, and magnolia. It is used for the production of corn, cotton, velvet beans, oats, cowpeas, and peanuts. Other crops which are sometimes grown are sorghum, sugar cane, upland rice, soy beans, lespedeza, cabbage, sweet potatoes, and

strawberries. Pecan trees appear to do well. Where the type is well cultivated, yields of 20 to 40 bushels of corn per acre and one-half to three-fourths bale of cotton are obtained.

This soil is cultivated and handled in much the same way as the upland soils, and about the same kind and amount of fertilizer is used.

The selling price of land of this type ranges from $10 to $30 an acre, depending upon the condition of tilth, the location, and improvements.

The type responds readily to good treatment and can be improved by the growing of legume crops and the incorporation of organic matter.

THOMPSON FINE SANDY LOAM.

The soil of the Thompson fine sandy loam consists of an upper layer of grayish fine sandy loam 3 or 4 inches thick and a lower layer of pale-yellow fine sandy loam 9 to 12 inches thick. The subsoil is a yellow or pale-yellow friable fine sandy clay, usually mottled with gray in the lower part and becoming in places more friable and sandy, in others more compact below 24 inches. Gray and brown mottlings are found below 18 inches, but though the gray mottling becomes more pronounced with depth, the yellow of the upper subsoil is always present.

The type resembles the Kalmia fine sandy loam, but it occupies lower situations than the latter. On the contrary it is slightly higher and better drained than the associated Bibb and Swamp types of the first bottoms. The largest areas lie along Black, Hurricane, Bay, Little Black, and North Little Black Creeks. Areas of smaller extent are found along Sandy Run, Monroe, Dry, and Pace Mill Creeks, and in places along Red Creek and the smaller streams throughout the county.

The topography of the Thompson fine sandy loam is level or flat, the type occupying a very low terrace which is subject to occasional overflows of short duration. The surface is interrupted by occasional slight depressions in which water stands during wet seasons. The type is somewhat less well drained as a whole than the Kalmia, and most of it would be benefited by ditching. Rice, Bermuda grass, carpet grass, and lespedeza, however, can be grown without improving the drainage conditions.

Only a small part of this type is farmed at present, but owing to its level topography it will probably be more extensively cultivated as the agricultural development of the county progresses. Much of it it still forested with pine, and has an undergrowth of broom sedge, ivy, bay, star anise, and gallberry. Recently cut-over areas support a good growth of carpet grass, broom sedge, and some lespedeza.

These furnish pasturage for cattle, sheep, and hogs from early spring until late fall.

The type where put under cultivation could be improved by straightening and enlarging the main stream channels, and by constructing lateral ditches to facilitate better drainage.

Both the soil and subsoil are acid, as shown by the litmus-paper test, and applications of ground limestone at the rate of not less than 2 tons per acre would prove beneficial. At the same time a leguminous crop, such as cowpeas, velvet beans, or lespedeza, should be grown and turned under to increase the supply of organic matter.

BIBB FINE SANDY LOAM.

The surface soil of the Bibb fine sandy loam is a gray fine sandy loam underlain at 3 or 4 inches by light-gray to nearly white fine sandy loam. The subsoil, beginning at about 10 or 12 inches, is a light-gray or bluish-gray fine sandy clay to silty clay, mottled with pale yellow. Dark-gray and brownish concretions are common, especially in the subsoil. In a few places at 24 to 30 inches considerable gray to steel-blue plastic clay is encountered, but as a rule the subsoil is more friable, being a fine sandy clay. In the virgin state the surface few inches of the type are often dark colored and the texture is more nearly a loam, owing to the organic matter present. In some places the type is quite variable, grading into the Thompson fine sandy loam or the poorer drained type mapped as Swamp.

The largest areas of this type lie along Dry Branch and Red Creek, near Lumberton, and also along Kelly Creek. Smaller areas are found along Myers Bay Creek and a few patches along Black Creek. The type occupies flat, poorly drained first-bottom land subject to overflow.

The topography is level, except for occasional slight depressions and a few swells and hummocks. Since most of the stream channels are shallow, the type is overflowed after heavy rains. On the more poorly drained areas, where the downward movement of water is slow, the soil is wet for long periods of time, drying out only during protracted dry weather.

Little or none of the Bibb fine sandy loam is cleared and under cultivation, most of it being used for pasture. The forest growth consists of tulip poplar, beech, black gum, magnolia, white oak, and ironwood. Star anise, laurel, and vines make up the principal undergrowth.

The type at present is best suited for pasture. Cattle, sheep, and hogs have free range on this type. With but little ditching lespedeza and Bermuda grass would do well and supply good grazing.

On the immediate banks of the streams the soil is often a gray, fine sand, resembling Riverwash, but on account of their small extent such

areas were included on the map either with the Bibb fine sandy loam or Thompson fine sandy loam.

The type as mapped also includes a few strips of Ochlockonee fine sandy loam, occurring mainly in the vicinity of Sumrall. It consists of brown fine sandy loam underlain at an average depth of about 8 inches by yellowish-brown or light-brown silty clay loam which shows gray mottling in the lower subsoil, and also mottling of rusty brown. In places the soil is very silty, while in other places it ranges to a light very sandy soil. It supports a growth of bay, magnolia, ironwood, smilax vines, and other water-loving plants.

There are also included areas of Bibb silt loam which have not been separated owing to their small extent. These areas consist of light-gray to whitish silt loam, in places containing a relatively large proportion of clay, underlain by a light-gray or whitish silty clay slightly mottled with yellow and rusty brown. Iron concretions are present in many places on the surface and through the soil section, and both surface soil and subsoil are distinctly acid, as a result of deficient drainage. The best use of this soil is for pasture land. It occurs in patches on first bottoms along the streams. The principal areas are located south of Corinth School, southeast of Okahola, 2½ miles south of Lee School, on Baptist Branch, and 2½ miles southwest of Midway School.

SWAMP.

The classification Swamp includes low, wet first bottoms or strips of alluvium along the smaller stream courses, in which the soil is variable, but consists mainly of black mucky loam and very fine sandy loam (Johnson soils), grayish fine sandy loam and silt loam (Bibb soils), and Peat. In one place the soil may be a mucky silt loam, while only a few rods away it is a rather coarse material of lighter color. Swamp is continually wet, usually saturated.

Many narrow strips do not have well-defined stream channels, but constitute drainage ways through which water gradually passes to the streams. Most of the type is densely forested, especially along larger drainage ways. The tree growth is typical of poorly drained areas, consisting of bay, black gum, water oak, swamp pine, holly, maple, and tupelo. In places the heavily forested areas have very little undergrowth, but along their outer edges and where thinly forested there is a thick undergrowth of titi, smilax vines, sphagnum moss, and many other kinds of water-loving flora. Azalea, star anise, wormwood, cross vine, beech, shortleaf swamp pine, sweet gum, magnolia, and tulip poplar are also present.

All the areas mapped as Swamp are subject to overflow and can not be economically reclaimed until the higher land is more extensively developed. Those areas having a black mucky loam soil

could be used in a small way for growing rice and celery if the water could be controlled at small cost. This land, if cleared and drained, could be used for lespedeza and Bermuda grass pasture.

None of the type is cleared, and owing to its swampy, "boggy" nature it is at present of no importance agriculturally.

SUMMARY.

Lamar County is situated in the southern part of Mississippi, within the coastal plain province. It has a total area of 495 square miles, or 316,800 acres. The topography in general is rolling, and drainage in most places is well established.

The county was organized in 1904, although the area now occupied by Lamar County was first settled about a hundred years ago. Purvis, the county seat, is located near the center of the county. The population of the county in 1920 is given as 12,869. The rural population is increasing, but a much larger population could be supported upon land now in condition for farming. Many large areas of cut-over land could easily be farmed with profit.

The three railroads, New Orleans & Northeastern, Gulf & Ship Island, and Mississippi Central, afford transportation facilities for the county, all parts of which are within comparatively short distances of stations of one or more shipping points. Most of the public roads are well laid out and graded. The county contains an abundance of road-building material. Good schools are located over the entire area.

The climatic conditions insure an abundance of rainfall. The winters are mild and the growing seasons long, favoring a widely diversified agriculture.

Compared with other industries, the agricultural development until the last few years has been slow, but at present a good proportion of the cut-over land is being cleared of stumps and put under cultivation. Cotton, corn, sweet potatoes, velvet beans, and sugar cane are the principal crops, but dairying and stock raising are becoming important. The milk is obtained principally from locally raised cows, which are fed almost entirely on home-grown feed, such as velvet beans, cottonseed meal, corn, and native hay.

Land values range from $4 to $5 an acre for stump land to as high as $50 an acre for improved land in especially desirable locations.

Sweet potatoes, watermelons, cattle, and dairy products are shipped out of the county to New Orleans and St. Louis.

There is still much need for improvement in general farming methods. Better drainage, deep plowing, systematic rotation, and better cultural methods should be encouraged.

There are three principal physiographic divisions, uplands, terraces or second bottoms, and first bottoms or present flood plains. The upland soils are residual in origin, and the terraces and first-bottom soils consist of alluvium deposited during overflows.

Exclusive of Swamp, there are 20 soil types grouped into 11 series.

The Ruston gravelly sandy loam is an inferior agricultural soil but makes good road-building material.

The Ruston fine sand is a rolling, droughty type, and has little agricultural value.

The Ruston sandy loam is a rolling type with good drainage. The organic content is low. Most of the type is used for pasture.

The Ruston fine sandy loam is the most extensive soil type in the county. The surface is undulating to rolling, and the drainage is good. It is deficient in organic matter and not naturally very productive, but it can be built up to a high state of productiveness by proper handling and fertilization. It is used for the production of all the crops common to this region.

The Norfolk fine sandy loam has a flat to gently undulating surface, and most of it has good drainage. Only a small part of it is cultivated. It produces about the same crops as the Ruston fine sandy loam, with which it is closely associated.

The Norfolk loam is flat to gently undulating. The drainage is fairly good, but some of the type requires artificial drainage and treatment for acidity. It is used chiefly for grazing.

The Orangeburg sandy loam is rolling to hilly, has excessive drainage, and is subject to erosion. It is an early soil and well suited to truck crops. Some of it is still forested with pine. The type is used principally for grazing.

The Orangeburg fine sandy loam in general is hilly or broken, with some small, gently rolling areas. The soil is naturally strong and productive, and responds especially well to fertilizers. The more level parts are cultivated and produce good yields of corn, cotton, cowpeas, and sugar cane; but most of the type, on account of its topography, is left as cut-over land or is in forest.

The Susquehanna fine sandy loam has a surface varying from rolling to nearly level, and an impervious subsoil that interferes with underdrainage. It is not very productive, and only a small part is cultivated.

The Susquehanna silt loam has a gently sloping to undulating topography and poor surface drainage and underdrainage. Both surface soil and subsoil are acid. Most of the type is used for open-range pasture.

The Susquehanna clay represents eroded areas of lighter types. None of it is under cultivation.

The Plummer silt loam occurs on low flats and slopes and has poor drainage. Some rice is grown on it, but its best use is for pasturing stock.

The Caddo fine sandy loam occupies slopes and flat areas lying lower than other upland types, and has poor drainage. It is unimportant agriculturally.

The Caddo loam occupies low upland areas, usually associated with Norfolk, Plummer, and Susquehanna soils. It is poorly drained and has an impervious subsoil. Only a little of the type is in cultivation, most of it being used for range grazing. Drainage, liming, and good cultural methods are necessary to make this a productive soil.

The Kalmia fine sandy loam occupies nearly level terraces, and has fairly good drainage, except in occasional depressions. Some of it is still in forest. The areas in cultivation produce fair yields of staple crops. The soil can be made very productive by draining, liming, and good farming.

The Kalmia loam occurs on flat terraces, just above overflow, and has poor drainage. Its principal use at present is for open-range grazing.

The Myatt silt loam occupies low, flat areas on higher terraces, and has poor drainage. Very little of it is in cultivation.

The Cahaba fine sandy loam occurs on high terraces, and has a smooth to gently sloping surface and good drainage. The type is not extensive, but a large part of it is in cultivation and produces good yields of the general farm crops and special crops commonly grown in the county.

The Thompson fine sandy loam is found on flat second bottoms subject to occasional overflow, and the drainage is not very good. Some of the type is in forest. The cut-over areas afford excellent grazing.

The Bibb fine sandy loam occupies low, nearly level first bottoms subject to frequent overflow, and has poor drainage. Most of the type is in forest and is used mainly for pasture.

Swamp includes low first bottoms which are continually wet. It consists of a mingling of various soil types. Most of it is heavily forested, and none of it is used for agricultural purposes.

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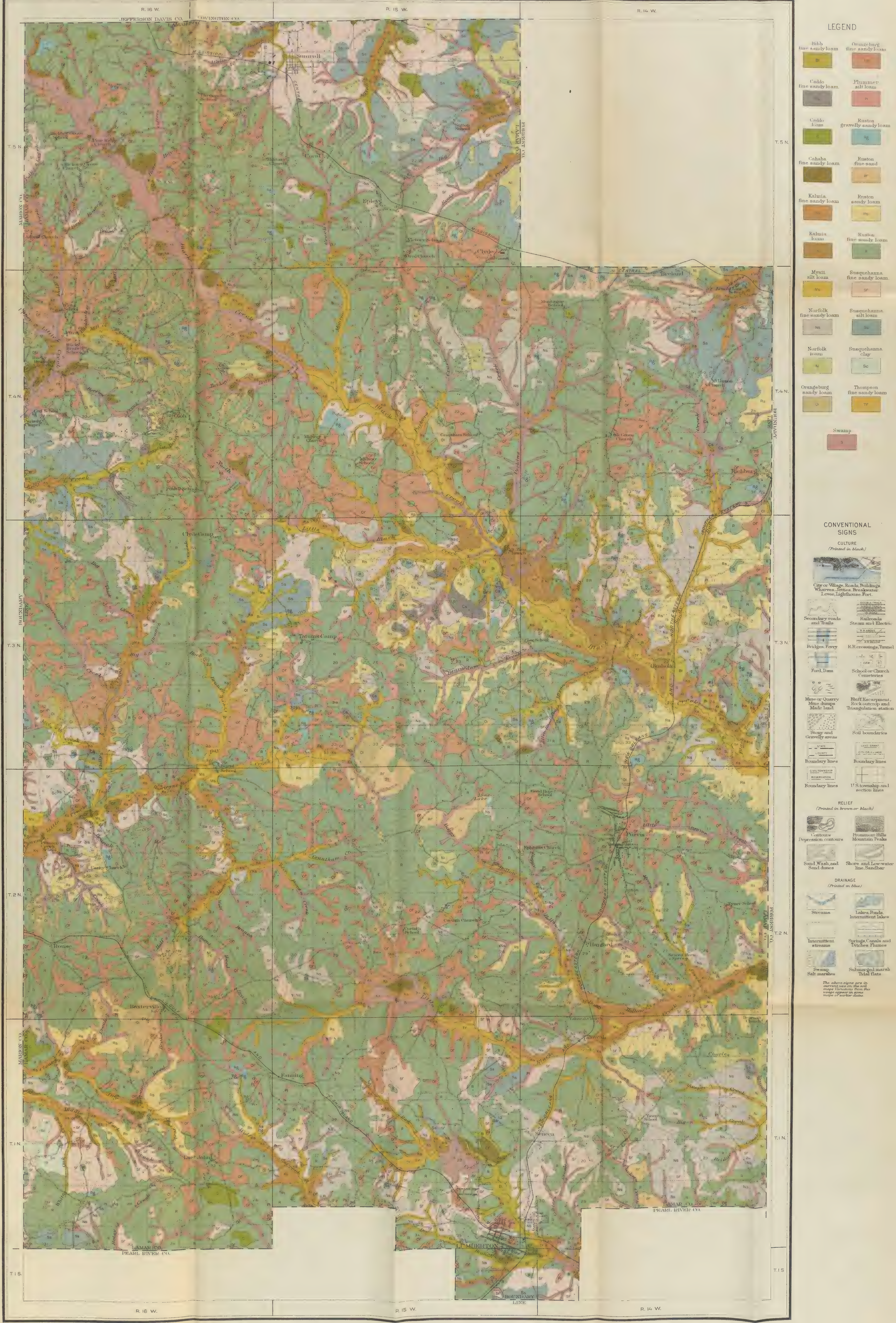
U.S. DEPT. OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF
CURTIS F. MARBUT, IN CHARGE SOIL SURVEY

SOIL MAP
MISSISSIPPI
LAMAR COUNTY SHEET



R. 16 W.
R. 15 W.
R. 14 W.
T. 5 N.
T. 4 N.
T. 3 N.
T. 2 N.
T. 1 N.
T. 1 S.
JEFFERSON DAVIS CO.
COVINGTON CO.
LAMAR CO.
FORREST CO.
MARION CO.
PEARL RIVER CO.
BOUNDARY LINE
Sumrall
Epley
Clyde
Breland
Richburg
Okahola
Purvis
Hanford
Talowah
Seneca
Lumberton
Baxterville
Fanning
Rouse
Oloh
Clyde Camp
Tatums Camp
Lost John
LEGEND
Bibb fine sandy loam
Orangeburg fine sandy loam
Caddo fine sandy loam
Plummer silt loam
Caddo loam
Ruston gravelly sandy loam
Cahaba fine sandy loam
Ruston fine sand
Kalmia fine sandy loam
Ruston sandy loam
Kalmia loam
Ruston fine sandy loam
Myatt silt loam
Susquehanna fine sandy loam
Norfolk fine sandy loam
Susquehanna silt loam
Norfolk loam
Susquehanna clay
Orangeburg sandy loam
Thompson fine sandy loam
Swamp
CONVENTIONAL SIGNS
CULTURE
(Printed in black)
City or Village, Roads, Buildings, Wharves, Jetties, Breakwater, Levee, Lighthouse, Fort.
Secondary roads and Trails
Railroads Steam and Electric
Bridges, Ferry
R.R. crossings, Tunnel
Ford, Dam
School or Church Cemeteries
Mine or Quarry Mine dumps Made land
Bluff, Escarpment, Rock outcrop and Triangulation station
Stony and Gravelly areas
Soil boundaries
Boundary lines
Boundary lines
Boundary lines
U.S. township and section lines
RELIEF
(Printed in brown or black)
Contours Depression contours
Prominent Hills Mountain Peaks
Sand Wash, and Sand dunes
Shore and Low-water line, Sandbar
DRAINAGE
(Printed in blue)
Streams
Lakes, Ponds, Intermittent lakes
Intermittent streams
Springs, Canals and Ditches Flumes
Swamp Salt marshes
Submerged marsh Tidal flats
The above signs are in current use on the soil maps. Variations from this usage appear in some maps of earlier dates.

Hugh H. Bennett, Inspector, Southern Division.
Soils surveyed by E. Malcolm Jones of the Mississippi Geological Survey, in charge, and H. G. Lewis, W. I. Watkins, A. C. Anderson and G. W. Musgrave of the U.S. Department of Agriculture.

Scale 1 inch = 1 mile

Field Operations
Bureau of Soils
1919

[PUBLIC RESOLUTION—No. 9.]

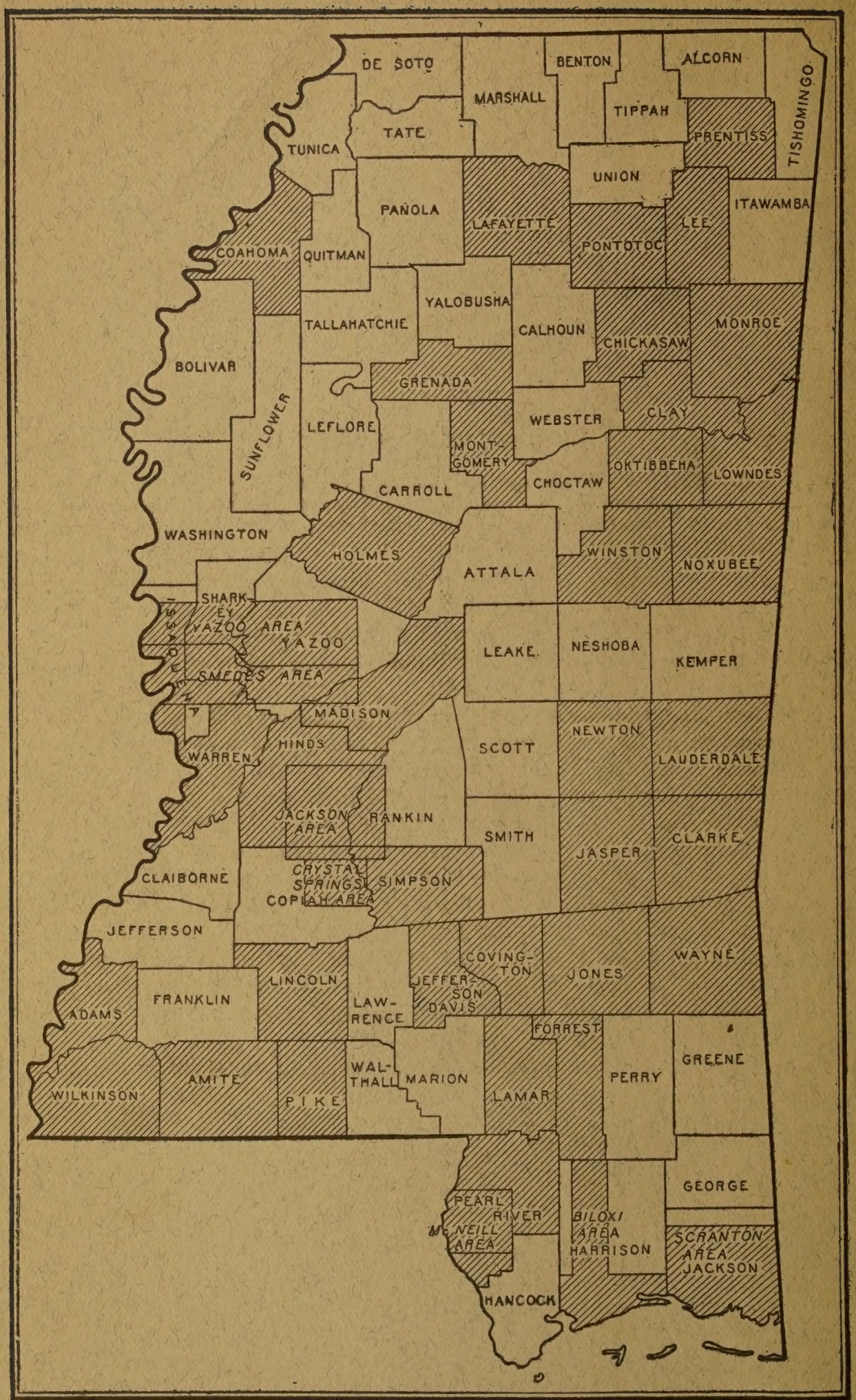
JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided*, That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]



Areas surveyed in Mississippi (shown by shading).